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Title: Production Qualification Training Course 1 of 8 Engineering
Authorization System

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Production Qualification Training

Course 1 of 8

Engineering Authorization System

Joint Initiative: W-8 Group and ALDW-DAQ

Curriculum Overview

This curriculum is intended to:

- Teach you about the Engineering Authorization (EA) System
- Explain the course subject in detail
- Provide references and guides that will help beyond this training



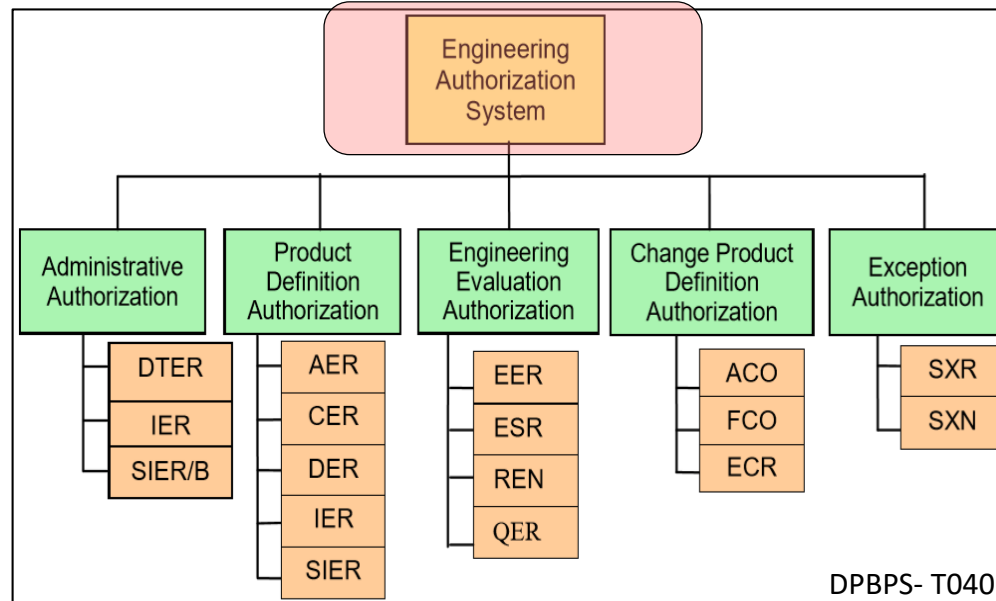
Utrain Course	Procedure	Title	Course #
RR 49297	W-SE-0008	Engineering Authorization System	Course 1
RR 49256	W-SE-0044	Production Qualification Procedure	Course 2
	W-DG-0003	Engineering Evaluation Plan Template	Course 2
	W-DG-0004	EE Data Package Template	Course 2
	W-DG-0005	Engineering Evaluation (EE Data Package Checklist)	Course 2
RR 49262	W-SE-0046	Administrative IER and SIER/B Procedure	Course 3
RR 49272	W-SE-0051	Definition IER and SIER Procedure	Course 4
RR 49273	W-SE-0052	DER, AER, CER Procedure	Course 4
RR 49268	W-SE-0048	Re-evaluation Notices (RENs) Procedure	Course 5
RR 49256	W-SE-0049	Engineering Evaluation Release Procedure	Course 5
RR 49271	W-SE-0050	Qualification Evaluation Release Procedure	Course 5
RR 49298	W-SE-0047	Advanced Change Orders, Final Change Orders, and Engineering Change Requests Procedure	Course 6
RR 49257	W-SE-0045	SXN/SXR Procedure	Course 7
RR 53083	TBD	Engineering Evaluation Overview	Course 8
	W-DG-0002	EA Cheatsheet and Checklist Desktop Guide	All



Engineering Authorization System Overview

The Engineering Authorization (EA) System provides a formal communication method among M&O contractors, including configuration control and record management of EAs

EAs authorize actions that affect product definition and related product and document information related to development, production, surveillance and dismantlement activities



Area of Focus

EA Category

EA Type

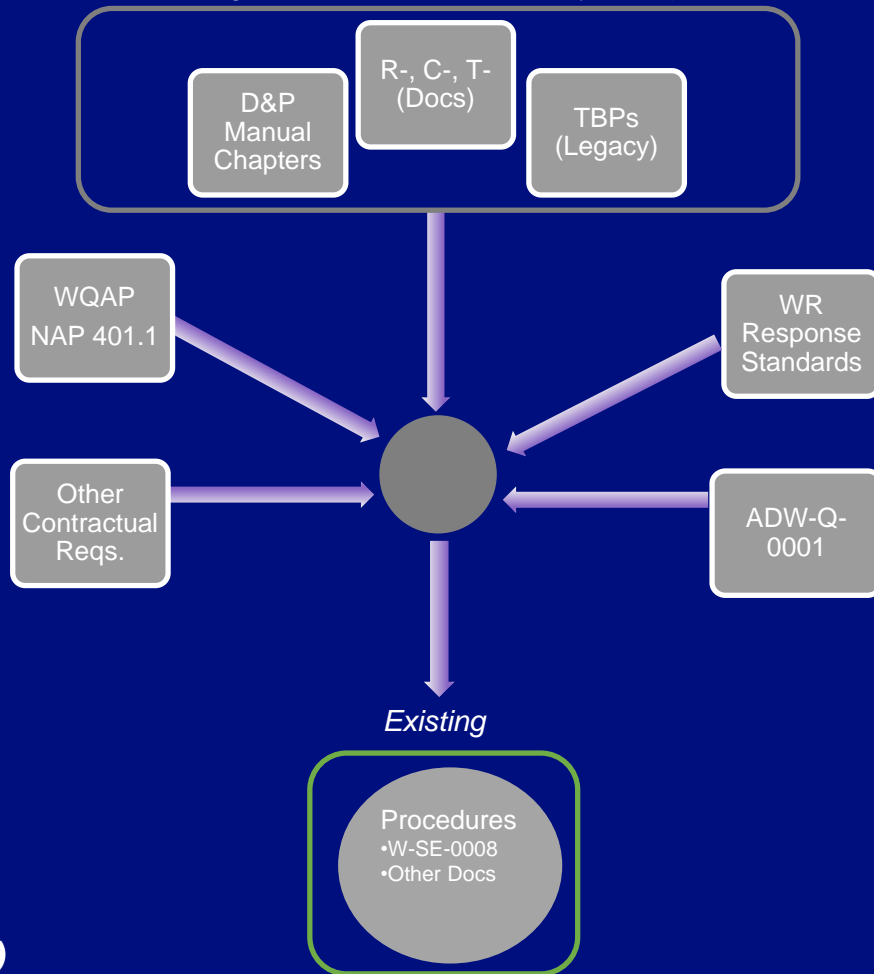


Training Objectives

- At the end of this training, you will:
 - Become familiar with the EA System and its governing source requirements
 - Understand the structure of LANL procedure usage for EAs
 - Know where to gain assistance in executing engineering authorizations
- What this training will not do:
 - Authorize you to author or approve EAs
 - Train you on how to navigate the EA tool (Arbortext), PDMLink, or PRIME



Defense Programs Business Process System (DPBPS)



Governing Requirements

- The requirements for use of Engineering Authorizations (EAs) are codified in numerous contractual documents:
 - DPBPS
 - WQAP
 - WR Response Standards
 - ADW-Q-0001
 - And other contractual documents
- The W-SE-0008 document describes the LANL implementation of these requirements



The LANL Design Agency (DA) and the National Security Enterprise (NSE)

- NNSA has assigned the nuclear weapons laboratories the responsibility to be the expert authority with respect to the underlying research, conceptualization, development and engineering design of the nuclear weapons for the United States Government
- The nuclear weapons laboratories have the sole responsibility for the qualification and certification of the nuclear weapons' design and performance based on their knowledge and understanding of the technical basis for nuclear weapons design and stockpile life performance



The LANL Design Agency (DA) and the National Security Enterprise (NSE)

- The LANL DA is responsible for the development of nuclear weapon design definition and maintenance of the expertise of each system to ensure stockpile certification
- The Engineering Authorization (EA) System is a key element of the Configuration Management Process
- All official LANL DA direction to the NSE (with the exception of Stop Production Notices) will be conducted through the Engineering Authorization System (EAs)



Engineering Authorization (EA) System

- TBP-404 (DPBPS-T040) provides in one document the attributes of the EA System
- TBP-404 (DPBPS-T040) details the release types, the requirements for each field of each EA type, and relates the EAs to related TBPs (or DPBPS content)
- These requirements are implemented through W-SE-0008U for the LANL Design Agency



Engineering Authorization (EA) System

- IBP-404 provides the process and protocols for electronic generation, exchange and transmission of EAs between sites
 - The standard for EA generation and exchange is as Extensible Markup Language (XML)
 - Compliant XML files are generated at the sites and released to the NSE Hub where they are dated, denoting release, and placed in the Image Management System (IMS) called PRIME (Product Realization Information Management and Exchange)
 - Sites retrieve the XML files related to their activities from PRIME



EA System Basics

- The format and content of each EA type is governed by the XML templates as specified in IBP-404, each site is allowed to establish their process for authoring and generating the XML file related to any given EA
- At LANL, the XML authoring tool used is Arbortext
 - The Arbortext tool is implemented to generate Engineering Authorization files in an XML format in compliance with the IBP-404 template
 - The generated XML file is maintained within the document control structure of PDMLink using the numbering format specified by TBP-404 (DPBPS-T040)
- EAs released from LANL are sent to PRIME using the “Hub” where they are date-stamped with a release date



EA System Basics

- The presence of the release date signifies the document is authorized and released
- The EA team at LANL distributes the EAs on the red network following their internal team procedures
- Sites pull released documents from PRIME which is the National Security Enterprise official record system
- LANL maintains record copies of all received and issued EAs in PDMLink



Authority to Author an EA

- W-SE-0008U, *Engineering Authorizations System*, details W/Q Division implementation of EA system requirements
- Management (group and division) is responsible for assigning training, providing mentorship, and assessing the engineer's readiness to author EAs
- The authority to author an EA is granted by management, and can be revoked by management



Authority to Author an EA

- Management is responsible and accountable for the context and content of EAs authored by those they have authorized
- Approval authorities are responsible for assuring the content and context of EAs they approve
- ALDW-DAQ will routinely sample released EAs and provide feedback on findings to management for management action



W-SE-0008U

- The roles and responsibilities of the personnel involved in creating EAs are explained, but the required approvers differ for each EA type
- Broad guidance and general requirements are described for the EA types



Weapons Program Systems Engineering

Engineering Authorization System

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Number	Revision	Effective Date
W-SE-0008U	J	April 8, 2020

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Rarely Used EAs at LANL

- W-SE-0008 contains the detailed requirements for EAs that are uncommon for LANL to create
- ESR
 - Used to indicate the status of evaluation phases
 - Not used by LANL, sometimes used by SNL
- DTER
 - Used to transfer maintenance responsibility to another site while retaining the LANL CAGE Code
 - LANL policy is to retain maintenance responsibility for LANL CAGE Code items
 - Management of DTER'd drawings requires significant LANL involvement and must be part of the consideration for transfer of maintenance



Minimum Required Approvals Per W-SE-0008U

Usage	W-DO ¹	Q-DO ²	System Group Office	Production Liaison Group Office	Surveillance Group Office	GTS ³ Group Office	Detonator Group Office	Weapon Product Definition Group Office	Author's Group Office
Product Definition	X	X	X	X				X	X
Surveillance Definition	X	X	X		X			X	X
GTS Definition	X	X	X	X		X		X	X
Detonator Definition	X	X	X	X			X	X	X
1 Weapon Systems Engineering Division Office (W-DO) 2 Weapon Stockpile Modernization Division Office (Q-DO) 3 Gas transfer system (GTS)									



Summary

- The Engineering Authorization (EA) System provides a formal communication method among M&O contractors, including configuration control and record management of EAs
- EAs authorize actions that affect product definition and related product and document information related to development, production, surveillance and dismantlement activities
- W-SE-0008, *Engineering Authorizations System*, details W/Q Division implementation of EA system requirements from numerous contractual documents
- The Engineering Authorization (EA) System is a key element of the Configuration Management Process
- All official LANL DA direction to the NSE (with the exception of Stop Production Notices) is conducted through the Engineering Authorization System (EAs)
- The format and content of each EA type is governed by the XML templates as specified in IBP-404
- Compliant XML files are generated at the sites and released to the NSE Hub where they are dated, denoting release, and placed in the Image Management System (IMS) called PRIME (Product Realization Information Management and Exchange)
- Management is responsible and accountable for the context and content of EAs authored by those they have authorized



References

Number	Title	Website
DBBPS -T040	<i>Engineering Authorization System</i>	https://dpbps.sandia.gov/SitePages/homepage.aspx
W-SE-0008U	<i>Engineering Authorization System</i>	https://int.lanl.gov/org/ddw/alldw/office-design-agency-quality/design-agency-procedures/system-engineering-procedures.shtml
ADW-Q-0001	<i>Los Alamos National Laboratory Design Agency Weapons Quality Assurance Program</i>	https://int.lanl.gov/org/ddw/alldw/office-design-agency-quality/index.shtml
NAP 401.1A	<i>Weapon Quality Policy</i>	https://prp.sandia.gov/SitePages/Home.aspx
IBP-404	<i>Engineering Authorization System</i>	https://prp.sandia.gov/SitePages/Home.aspx



Resources

When you have issues or questions regarding the Engineering Authorization System, there are resources you can go to:

- ALDW Office of Design Agency Quality (ALDW-DAQ)
- Production Liaison Group (W-8)
- Engineering Authorization Team (W-11)
- W- and Q- Division Group Leaders
- This training



Acronyms

DTER	Drawing Transfer Engineering Authorization
IER	Information Engineering Authorization
SIER/B	Special Instruction Engineering Release/B Authorization
AER	Advanced Engineering Authorization
CER	Complete Engineering Authorization
DER	Development Engineering Authorization
SIER	Special Instruction Engineering Authorization
EER	Engineering Evaluation Authorization
ESR	Evaluation Status Release



Acronyms (continued)

REN	Reevaluation Notification Authorization
QER	Qualification Evaluation Authorization
ECR	Engineering Change Request Authorization
ACO	Advanced Change Authorization
FCO	Final Change Authorization
SXN	Specification Exception Notice Authorization
SXR	Specification Exception Authorization
DA	Design Agency
PA	Production Agency
DPBPS	Defense Programs Business Process System
M&O Contractors	KCNSC / LANL / LLNL / NNSS / PX/ SNL / SRS / Y-12



Course 1: Complete

